essential to promote implementation of wideband pulse-ranging service. Hence, the Commission can best carry out the statutory directive by adopting the proposed rules.

Ironically, Amtech accuses Teletrac of opposing new technology through its proposed rules and would require Teletrac to justify this purported "opposition". In fact, it is Amtech and other opponents of the proposed rules who propose, albeit tacitly, to impede technological development. As noted in n. 12 above, Amtech has licenses at almost every 1 MHz frequency between 903-912 MHz and between 918-927 MHz in at least one market. If Amtech were to receive licenses for these frequencies in every market, the spectrum would become saturated with interfering signals. Wideband system operators would be forced to expend the vast resources necessary to filter those narrowband signals before their systems could be implemented. Even after filtering, the wideband pulse-ranging system's accuracy and overall performance would be left degraded. Thus, adherence to Amtech's shared spectrum philosophy would favor entrenched narrowband technologies such as Amtech's. Therefore, Amtech should bear the burden of justifying why wideband systems should be excluded through continued adherence to an unauthorized, interference prone, shared spectrum philosophy.

4. The Build Out And Deployment of Wideband Pulse-Ranging Systems Is Pro-Competitive.

Amtech argues that the proposed rules will have anti-competitive effects. Amtech contends that under the proposed rules established providers such as itself will be unable to expand and service arising market needs. Moreover, Amtech fears that the proposed rules will inhibit its ability to market its technology internationally, and will thus injure the U.S. economy.

This parade of horribles ignores the potential contributions of wideband pulse-ranging technology.[15] The introduction of wideband AVM systems will have substantial pro-competitive impact on the market for AVM. As noted above, wideband pulse-ranging systems can be used for a variety of new and innovative applications and services. For example, wideband pulse-ranging technology can provide sophisticated fleet management services which will dramatically improve productivity in transportation related businesses. Similarly, immediate and precise vehicle location will allow quick dispatch of emergency road service.

Wideband pulse-ranging systems will also be an attractive alternative to narrowband systems including Amtech. For example, companies such as MobileVision are prepared to respond to the need for Intelligent Vehicle Highway Systems (IVHS) as expressed in the Intelligent Vehicle Highway Systems Act of 1991. Wideband IVHS will complement current narrowband IVHS technology. These wideband innovative systems will help control traffic congestion, and thereby promote energy efficiency and air quality control.

---

[15] In addition, it ignores the spectrum allocation to narrowband systems discussed above.

Thus, Amtech's contention that the proposed rules would threaten the development of IVHS is specious. Under the proposed rules, Amtech and others remain free to develop and implement these systems. The proposed rules simply will allow the introduction of alternative wideband technologies to the ultimate benefit of consumers.

Amtech is correct in stating that the Commission should not enshrine current technology. Amtech Opposition at 1. But reliance on Amtech's wideband/narrowband shared spectrum approach would effectively create an AVM industry standard significantly inferior to that which is possible. Moreover, Amtech's shared spectrum approach would shield established narrowband technology from wideband pulse-ranging competition, and deny the public access to advanced services. Viewed in that light, Amtech's opposition to a set of proposed rules which are designed to control debilitating interference is nothing more than an overblown attempt to impede the build out and implementation of wideband pulse-ranging systems. The Commission should treat it accordingly.

B. The Commission Should Not Halt Or Delay The Implementation of Existing Wideband Pulse-Ranging Systems While Other Potential Service Providers Attempt To Develop Their Technology.

Licensees are implementing wideband pulse-ranging technology throughout the United States. Companies such as Pinpoint Communications, Inc. (Pinpoint) and Southwestern Bell Corporation (SBC), however, are still in the process of developing or evaluating technology. As a result, these companies request that the Commission delay the implementation of wideband pulse-ranging systems until they are ready to serve the market. Several crucial facts place these parties' comments in perspective:

1. They have no tested technology.

2. They have no licenses to provide AVM services.

3. They want the Commission to prevent others from implementing wideband pulse-ranging systems until they have viable technology.

The market should not be made to wait.[16]

The petition proposes permanent rules which will foster the timely implementation of wideband pulse-ranging technology. Pinpoint and SBC, on the other hand, would have the Commission halt or delay the implementation of viable systems until they are ready to implement their technology -- whenever that may be.

Section 7 of the Communications Act resolves these conflicting requests. "It shall be the policy of the United States to encourage the provision of new technologies and services to the public." 47 U.S.C. § 157(a). Therefore, it would be contrary to the Act and the expressed policy of Congress to delay the introduction of wideband pulse-ranging AVM systems. Nor should the Commission create any disincentives to the continued expansion of AVM technology. Rather, it should promote the public interest by adopting rules which will provide for the orderly growth of the AVM industry. To do otherwise would merely accede to the technology speculation of the few to the detriment of the many.

---

[16] In other words, their idea of a level playing field is one where the game does not start until they are suited up. But others such as Teletrac and MobileVision -- and most importantly consumers -- are ready to play now. The Commission must decide whether it is in the public interest to delay implementation of existing technology which will provide services demanded by the public.

1. Pinpoint's Speculation About The Operational Attributes Of Its System Is Not Backed With Any Proof.

METS has been developing and refining its AVM system since 1984. It has conducted numerous tests and has accumulated substantial data regarding the operation of its system. Even with this experience, MobileVision has had to make significant refinements as it has built out the METS system in the real world.

Pinpoint has never operated a system. But inexperience has not deterred it from making unsupported allegations maligning Teletrac's wideband pulse-ranging technology. First, it alleges that the technology is spectrally inefficient. Opposition of Pinpoint Communications, Inc., filed July 23, 1992, at 3 (Pinpoint Opposition). According to Pinpoint, "exclusivity is not required for properly designed AVM systems." Pinpoint Opposition at 1. Second, Pinpoint claims that it has designed a more "robust" system that will be able to coexist with numerous other wideband systems and an unlimited number of narrowband systems.[17]

Pinpoint's paper theories are not sufficient to justify delaying the implementation of state-of-the-art wideband pulse-ranging technology. Pinpoint must offer proof that multiple wideband systems can operate on the same frequency. It has not. Absent such proof, a delay would be contrary to the Commission's "statutory obligations 'to encourage the provision of new technologies and services to the public' and 'generally

---

[17] Pinpoint is forced to admit that "there may be practical limits to the number of HML systems that reasonably can be accommodated within the 902-928 MHz band . . . ." Pinpoint Opposition at 9. It does not know how many (how could it?), but Pinpoint is sure that it exceeds two.

'encourage the larger and more effective use of radio in the public interest.'" Pinpoint Opposition at 1-2.

a. Pinpoint Has Never Even Tested An AVM System.

Making claims about the capabilities of a system is easy when that system is untested. Pinpoint's system is untested. According to Pinpoint's own comments, it has done no more than conduct propagation studies under an experimental license. The propagation studies have attempted "to characterize the conditions likely to be encountered," but do not constitute operation in the real world. Pinpoint Opposition at 6. Pinpoint has no experience with reality. It has never implemented a system. It has no real data.

In contrast, Teletrac deployed and now operates systems in several cities. Teletrac's data is real, not theoretical. Teletrac knows what its system can and cannot do.[18] In short, it is not technologically feasible to operate two wideband pulse-ranging systems on the same 8 MHz of spectrum.

Pinpoint's naive optimism is understandable. When METS designed its system, it shared Pinpoint's ultimate goal -- to develop a system capable of sharing spectrum with no corresponding service degradation. Pinpoint Opposition at 14. But current technology -- even Pinpoint's purported technology -- cannot tolerate another wideband system operating on the same spectrum.

---

[18] Similarly, METS is operating and expanding a pilot system in Southeast Florida and MobileVision is implementing the METS system in Chicago, Illinois. METS and MobileVision have collected real data on interference problems and METS has made significant refinements to its system in order to address these problems.

Of course, there is still a strong incentive for licensees to develop a system which can tolerate interference. The 904-912 MHz and 918-926 MHz bands have numerous users in addition to AVM systems such as industrial, scientific and medical users, Part 15 licensees and government systems.[19] The better a wideband system can tolerate this interference, the more reliable the system will be. Thus, Pinpoint's argument (Pinpoint Opposition at 19) that licensees would have no incentive to build a tolerant system misses the mark. If systems progress to the point where multiple licensees can operate efficiently on the same spectrum, then MobileVision would not object to multiple licensees. But the Commission cannot license multiple providers on the same spectrum unless and until it is sure that it will not cause debilitating interference to both systems.

If spectrum sharing among wideband pulse-ranging systems becomes a realistic possibility, the Commission can then revisit these issues and adopt a proper licensing scheme in light of that new technology.[20] In this rulemaking, however, the Commission must craft rules with an eye toward the technology that exists today.

---

[19] Nothing proposed in these comments is intended to disrupt the priority allocation of this spectrum to the government. 47 C.F.R. § 2.106.

[20] In that regard, Pinpoint has conducted propagation studies under its experimental license. In addition, Pinpoint expects to conduct field tests in late 1992. In order to assist the Commission in its continuing evaluation of AVM technology, Pinpoint should submit the data collected from those field tests to the Commission. Similarly, MobileVision would be willing to provide the Commission with any technical information it deems necessary to gain a better understanding of the status of 1992 wideband pulse-ranging technology.

b. Pinpoint's Claims Are Based Upon Several Crucial and Incorrect Assumptions.

Pinpoint's lack of experience implementing and operating wideband AVM systems leads to several crucial errors in its assessment of the potential for multiple systems on the same frequency. In short, if the Commission were to accept Pinpoint's arguments and license unlimited wideband and narrowband systems on the same 8 MHz, the spectrum will be useless for pulse-ranging technology.

First, two wideband pulse-ranging systems cannot operate on the same spectrum. This is a reality inherent in wideband pulse-ranging systems. Both Teletrac and MobileVision, the only wideband pulse-ranging licensees implementing systems, have experienced severe degradation in service quality even from narrowband licensees.[21] The presence of multiple wideband systems on the same spectrum would be devastating to all.

Teletrac and MobileVision have submitted the results of their interference studies to the Commission as part of their respective comments on the proposed rules. Neither Pinpoint, nor any other commentor has submitted evidence to the contrary. Nor could they. Instead, Pinpoint relies on speculation and makes the bald assertion that multiple licensees can co-exist successfully. But mere hypothesis accompanied by theoretical musing is not enough. The Commission should require Pinpoint to demonstrate conclusively that multiple wideband systems can operate on the same spectrum.

Second, a forward link is essential to the operation of an 8 MHz wideband pulse-ranging system for system control purposes. It is not possible for every mobile unit

---

[21] This is not to say that Teletrac and MobileVision use identical technology. They do not. However, their similar experience is even more a testament to the validity of their interference findings.

to use every system function at a given time. Thus, the system must be organized in a manner which strictly allocates system resources. The most efficient method of implementing this control is through the use of a common system resource that all objects are capable of monitoring or "hearing". Objects then are commanded to perform certain actions at specific times by a central controller. The forward link is the mechanism by which the system control function is implemented. In order to maximize throughput and minimize self-induced interference, a separate frequency allocation is required for the forward link.

Pinpoint argues that a forward link in separate spectrum is not necessary for a system which uses 16-22 MHz. Pinpoint Opposition at 20. MobileVision agrees. If the Commission had allocated 22 MHz to wideband pulse-ranging AVM systems then MobileVision would not need a separate forward link either. But the interim rules do not allow licensing of AVM systems across an entire 22 MHz of spectrum. Thus, Pinpoint's analysis is based upon the flawed assumption that it can operate outside the interim rules.

c. Pinpoint's System Requires Substantial Changes To The Interim Rules.

Under the interim rules, no wideband pulse-ranging licensee can operate on more than one 8 MHz band. Pinpoint, however, makes its system performance claims based upon the assumption that it will have at least 16 MHz and possibly 22 MHz. Pinpoint Opposition at 27. Neither the interim rules nor the proposed rules would allocate so much

scarce spectrum to a single licensee. Thus, if Pinpoint wants additional spectrum it must gather concrete support for its request and petition for a rulemaking to that effect.[22]

Moreover, even if Pinpoint were to receive 22 MHz of spectrum, it remains questionable whether they could develop a system which performs consistently with their claims. MobileVision's test data, show that co-channel separation is not merely a convenience but a must for wideband systems. MobileVision Initial Comments, Technical Appendix. 22 MHz of spectrum will not eliminate the need for co-channel separation.

That being said, MobileVision would welcome the opportunity to have 22 MHz of spectrum for its system. This would provide much greater flexibility to implement new services for the consuming public. However, unless spectrum sharing technology is developed to the point that multiple wideband pulse-ranging systems can operate on the same frequencies, this exorbitant allocation would be inefficient.

Pinpoint makes some impressive claims about its untested ARRAY system. But Pinpoint cannot know if its claims are true unless and until it implements a system and begins collecting reliable field data. The Commission should not require consumers to wait for Pinpoint. The Commission should adopt rules which encourage implementation of state-of-the-art technology by licensees such as MobileVision.

---

[22] It is interesting that Amtech and Pinpoint concur on this matter since it appears to be of no value to Amtech.

2. The Commission Should Not Adopt Rules Which Rely Upon Speculation About Frequency Use.

As explained above, existing wideband pulse-ranging technology requires 8 MHz of spectrum. Despite this, Southwestern Bell claims that there may come a day when it can implement an economically viable wideband AVM system in an urban environment on less than 8 MHz. SBC's own words illuminate the speculation inherent in its comments. SBC claims that it is "currently investigating technologies which may offer sufficient capacity requirements to provide this service with frequency assignments at least as small as 4 MHz." Comments of Southwestern Bell Corporation, filed July 23, 1992 at 3 (SBC Comments) (emphasis added).

SBC's comments are grounded in speculation, not reality. At some time in the future, an AVM system may be able to operate in an urban environment on less than 8 MHz. Since the early 1980's, METS has been attempting to develop the most spectrally efficient system possible. That system requires 8 MHz of spectrum. As with Pinpoint's purported interference tolerant system, the Commission should revisit the licensing scheme if technology advances make the existing scheme obsolete. But that is not the case today.[23]

---

[23] SBC recognizes, however, that co-channel separation is essential for the operation of wideband pulse-ranging AVM systems, even with the technology which it is "investigating." SBC Comments at 3.

3. The Commission Should Adopt Rules Which Provide For A Second Wideband Licensee Upon A Showing Of Conclusive Proof Of Non-Interference.

At present, it is impossible to operate multiple wideband pulse-ranging systems on the same spectrum band. Pinpoint, MobileVision and others, however, are attempting to develop AVM systems which are able to tolerate otherwise debilitating interference. In the event that such a system is developed, the Commission should revisit its licensing scheme for AVM systems providing for a single wideband pulse-ranging system on each 8 MHz band. In the meantime, the Commission should adopt a rule which addresses this possibility.

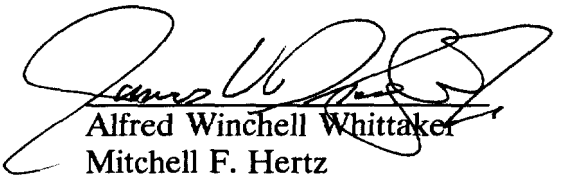
MobileVision proposes that under the permanent rules the Commission should grant a second wideband license on a given 8 MHz only if the proposed licensee can prove conclusively that it will not interfere with the first licensee. If Pinpoint's system can already achieve that result, it would be entitled to a license in any market.

CONCLUSION

The Commission has received a great deal of information -- and misinformation -- about the proposed rules. Amtech has littered its comments with inaccurate information about the interim rules, misstatements regarding the proposed rules and statements reflecting a complete misunderstanding of current technology. Amtech, Pinpoint, and Southwestern Bell all exhibit a desire to inhibit the development and deployment of current wideband pulse-ranging systems. Otherwise, stark contrasts exist among the comments. Neither Amtech nor Pinpoint have submitted evidence supporting their claims that the proposed rules will either decimate narrowband AVM systems (Amtech) or thwart the development of new technology (Pinpoint). In contrast, Teletrac

and MobileVision have submitted comments and technical data which prove that the proposed rules will do the opposite -- they will encourage the development of new technologies and promote competition in the AVM marketplace. These were the objectives of the 1974 rules and these should be the Commission's objectives today. The proposed rules are essential to achieve these objectives.

Respectfully submitted,



John J. McDonnell
Marnie K. Sarver
Matthen J. Harthun
Reed Smith Shaw & McClay
1200 18th Street, N.W.
Washington, D.C. 20036
(202) 457-8646

Alfred Winchell Whittaker
Mitchell F. Hertz
James W. Draughn, Jr.
Kirkland & Ellis
655 15th Street, N.W.
Washington, D.C. 20005
(202) 879-5000

Counsel for

MOBILEVISION
An Ameritech/METS Partnership

August 7, 1992

CERTIFICATE OF SERVICE

I, James W. Draughn, Jr., hereby certify that on August 7, 1992, a copy of the Reply Comments of MobileVision in Support of Telectrac Petition for Rulemaking was served by the United States Mail, postage prepaid on the following:

Richard C. Steinmetz
Allen Bradley Company, Inc.
1201 South Second Street
Milwaukee, WI 53204

George Y. Wheeler
Koteen & Naftalin
1150 Connecticut Avenue, N.W.
Suite 1100
Washington, D.C. 20036

Hunter O. Wagner, Jr.
Greater New Orleans Expressway Commission
P.O. Box 7656
Metairie, LA 70010

Stanley M. Gorinson
Lyndee Wells
Winthrop, Stimpson, Putnam & Roberts
1133 Connecticut Avenue, N.W.
Washington, D.C. 20036

Carl C. Harris
John B. Richards
Keller & Heckman
1101 G Street, N.W.
Washington, D.C. 20001

Richard E. Wiley
John L. Bartlett
David E. Hilliard
Carl R. Frank
Edward A. Yorkgitis
Michael A. Lewis
Wiley, Rein & Fielding
1776 K Street, N.W.
Washington, D.C. 20006

Richard F. Andino
Amtech Logistics Corporation
17304 Preston Road, E100
Dallas, Texas 75252

David M. LeVan
Consolidated Rail Corporation
Six Penn Center Plaza
Philadelphia, PA 19103-2959

Ken Siegel
American Trucking Association
2200 Mill Road
Alexandria, VA 22314-4677

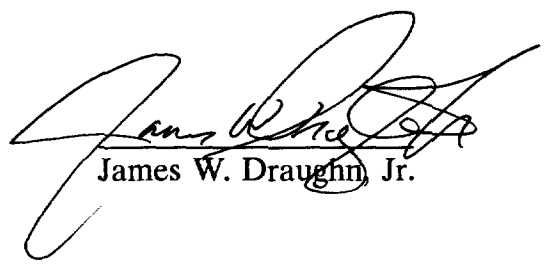
James S. Marston
American President Companies, LTD.
1111 Broadway
Oakland, CA 94607

Thomas J. Keller
Verner, Liipfert, Bernhard,
McPherson and Hand, Chartered
901 15th Street, N.W., Suite 700
Washington, D.C. 20005

C.A. Moore
City of Los Angeles
Dep't of Airports
P.O. Box 9921
Los Angeles, CA 90009-2218

David L. Hill
Audrey P. Rasmussen
O'Connor & Hannan
1919 Pennsylvania Avenue, N.W.
Suite 800
Washington, D.C. 20006

James D. Ellis
William J. Free
Mark P. Royer
One Bell Center
Room 3524
St. Louis, MO 63101-3099



James W. Draughn, Jr.